USDA Offers New Forest/Timberland Inventory Tool

At a recent RTA Executive Committee meeting, one board member questioned whether there were any data on the change in the amount of available hardwood timber for sawmills to cut into any products. Fortunately, it isn't necessary to speculate. There's an excellent online tool that measures forestland and timberland inventories by state and species mix.

The United States Department of Agriculture Forest Service Division has developed the EVALIdator, which can be used to develop in-depth information on the subject. The EVALIdator tool can be located at http://apps.fs.fed.us/Evalidator/evalidator.jsp.

This article, along with the table and charts, is designed to provide a brief tutorial on how use the calculator to grab data that can be exported to an Excel spreadsheet for further work. Also included is an important glossary of terms that will help navigate the website even easier.

Also, please check www.rta.org for more on this in the future as a brief webinar will posted soon in the "Industry" section of the website.

What Can The EVALIdator Do?

A better question might be what *can't* EVALIdator do, because it is a very deep calculation tool based on actual field surveys of forests throughout the United States. For our purposes, we will strictly look at one of 134 estimations available for the state of Georgia. If you follow the instructions as written in this article you'll note that the number of calculations one can do is astronomical, so it will be necessary for the user to develop their own rules for what data is most important to generate. Follow along on your computer.

In our case, once you are on the web page for EVALIdator, in Step 1 (page 1) of the website we chose only one estimate from the first dropdown box (listed as the numerator) and that was "Net Volume of Sawtimber Trees, in board feet, (one-quarter-inch International [kerf] Rule), on timberland." This

option is found about halfway down the first dropdown menu under the VOLUME__ON TIMBERLAND main heading.

We chose timberland rather than forestland because forestland is all land where trees grow, regardless of whether it is "available for logging." Timberland, however, is the actual acreage where trees grow and are made available for logging.

We chose board feet because that measure is one of the most easily understood by all tie suppliers. [It is important to note that most mills today are more efficient, in that kerfs of one-eighth-inch are now more often the norm in today's modern sawmill. That said, using the one-quarter-inch kerf rule would suggest that any volume estimates are probably conservative.] We did not pick a denominator in this query since we are not looking for a ratio in the output.

After selecting this option, and at the bottom of page 1, the user should then click on continue.

In Step 2 (page 2), you have the option of

Figure 1

GEORGIA SAWTIMBER ON TIMBERLAND IN BF	Species group - Major		TOTAL VOLUME	TOTAL GROWTH	TOTAL REMOVALS*
Species group	Total	Softwoods	Hardwoods	Hardwoods	Hardwoods
Total	127,432,291,639	74,637,640,644	52,794,650,995	1,569,013,996	497,845,504
Select White Oaks	6,401,457,106	-	6,401,457,106	222,626,681	52,452,262
Select Red Oaks	1,542,408,605	-	1,542,408,605	44,380,580	9,117,448
Other White Oaks	3,603,185,319	-	3,603,185,319	104,592,696	11,721,956
Other Red Oaks	12,935,011,610	-	12,935,011,610	405,547,437	191,604,410
Hickory	2,514,192,216	-	2,514,192,216	64,712,405	19,947,134
Soft Maple	1,865,997,054	-	1,865,997,054	51,136,731	15,771,014
Sweetgum	6,681,492,267	-	6,681,492,267	211,849,486	52,520,534
Tupelo and Blackgum	4,158,770,719	-	4,158,770,719	98,565,521	40,281,645
Ash	922,891,894	-	922,891,894	25,235,632	15,473,737
Yellow-poplar	10,392,850,904	-	10,392,850,904	296,005,078	71,946,633
Other Eastern Hard Hardwoods	93,255,292	-	93,255,292	1,462,788	N/A
Hard Maple	23,352,166	-	23,352,166	205,907	N/A
Beech	146,822,282	-	146,822,282	2,264,839	N/A
Cottonwood and Aspen	9,399,912	-	9,399,912	1,190,415	N/A
Basswood	68,479,695	-	68,479,695	5,079,088	N/A
Black Walnut	49,508,355	-	49,508,355	870,303	N/A
Other Eastern Soft Hardwoods	1,385,575,599	-	1,385,575,599	35,606,290	17,008,731

choosing one or more states. In this scenario, the state of Georgia was chosen. If a user wishes to choose multiple states, or create a region, they would need to hold down the control key while choosing (or deselecting) the desired states. Then, again, click on continue.

In Step 3 (page 3), for this scenario, there is no need for a page variable. In the row variable, choose Species Group and for the Column Variable choose Species Group – Major. The output will look like *Figure 1*. The pie chart that accompanies *Figure 1* as *Chart 1* was created after exporting the data.

In *Chart 2*, the reader will see that additional variables were chosen for Step 1. In this case, Average Annual Growth Rate and Average Annual Removals on Timberland in board feet were chosen for Georgia and then were manually merged with total volume for comparison purposes. In each case, the data was copied and pasted into an Excel spreadsheet.

As the reader explores this tool, they will be able to create many different data sets depending on how they wish to view the make up of U.S. forests.

Areas of tree growth, number of trees, mortality rates, biomass and carbon basis are all options. Furthermore, the area can be changed from states to specific "circles." The "State(s) Retrieval" type is the default. The user can select the "Circle Retrieval" type when the area of interest is a circular area around some point. If the circle option is chosen, the user must also enter the latitude and longitude of point center in decimal degrees (the latitude and longitude of Duluth, Minn., for example, is latitude=46.78 and longitude=92.12) and enter the circle radius in miles. A location's latitude and longitude can be obtained using Google Maps, and further information is provided in EVALIdator's page 1 instructions.

This tool may provide the user in-depth information about the ever-changing forests of the United States as more and more on-the-ground surveys are added to the database. The following outline of terms will also be helpful in using EVALIdator.

Forest Inventory Terms & Concepts
There are two land classifications that inventory information can be developed for: forestland and timberland.

Chart 1

**Total Volume Sawtimber in BF by Species in Georgia**
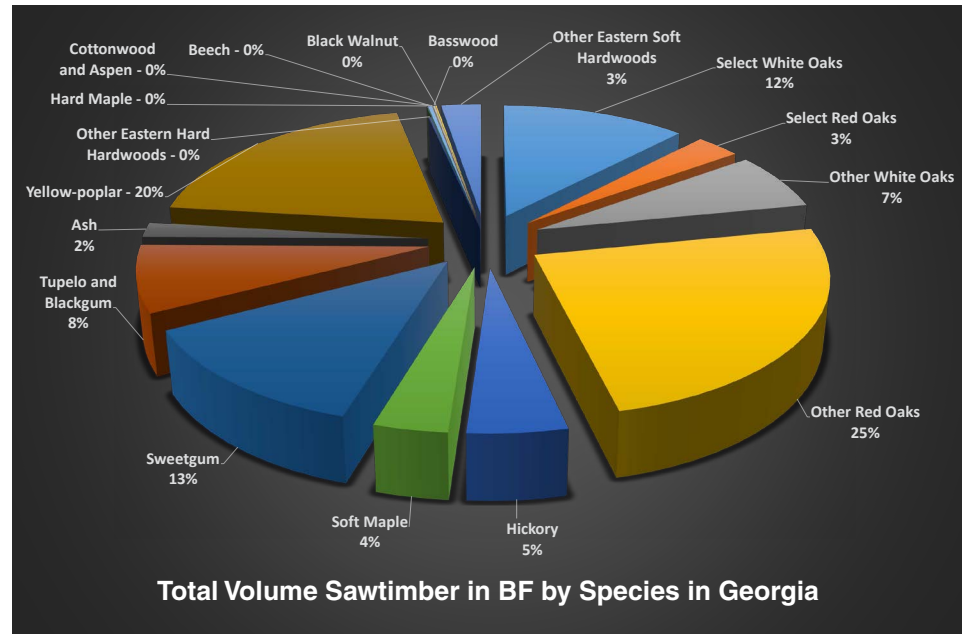
Forestland is a more inclusive measure and represents land with at least 10 percent cover by live trees of any size. Timberland is forest land that is producing or is potentially capable of producing at least 20 cubic feet per acre per year of wood volume and excludes forest land withdrawn by laws prohibiting management for the production of wood products. Normally, timberland is the land type examined when evaluating timber markets and wood utilization issues.

The most comprehensive measurement of live timber volume is cubic volume of trees at least five inches in diameter at breast height (DBH). Cubic volume of all live trees is further subdivided into tree classes: growing stock, rough culls, and rotten culls. Rough cull trees represent 16 percent of all live tree volume of the eastern hardwood timber base, and rotten cull volume is one percent of total volume. As a comparison, the volume of eastern softwood cull trees is 5 percent (USDA FA 2015). Rotten cull trees are usually excluded in the remainder of this because of the lower probability of potential utilization. Therefore, the term "cull" in the remainder of this outline refers to rough cull trees.

Growing stock are live trees of commercial species that meet minimum merchant-

Chart 2
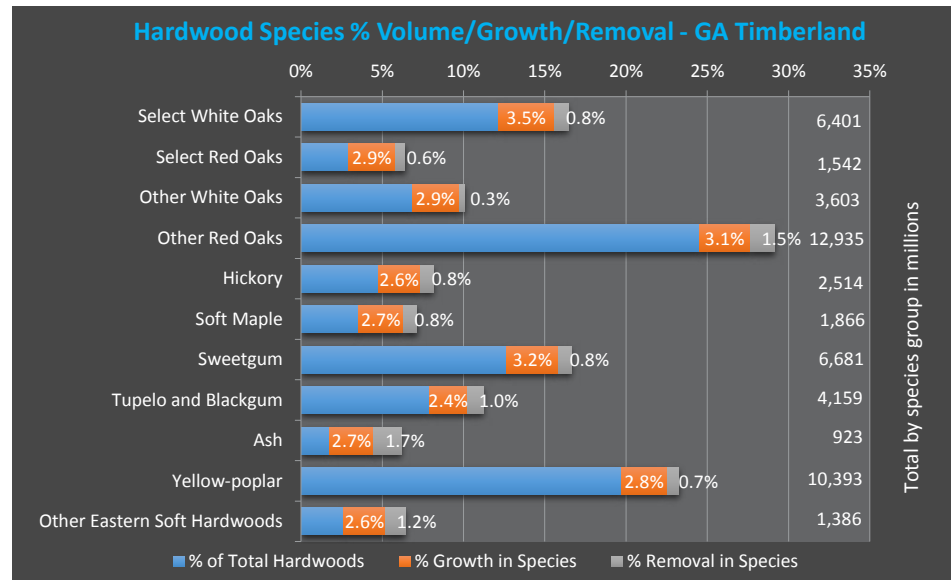
ability standards. Growing stock trees 11 inches DBH and larger are classified as sawtimber. Sawtimber trees must contain at least one 12-foot merchantable log or two noncontiguous eight-foot merchantable logs. Hardwood growing stock trees five to 10.9 inches DBH are classified as pole timber. To meet minimum merchantability standards, pole timber trees must be evaluated to determine if they have the potential of becoming sawtimber once they exceed 11 inches DBH. Cull trees can be termed 'pole timber' or 'sawtimber size,' but when pole timber or sawtimber are not modified by the term size, then it's in reference to growing stock. In the 2013 survey, 21 percent of the volume of pole timber size and 13 percent of the volume of sawtimber-sized trees in the eastern United States were cull (USDA FS 2015). However, these proportions vary widely by region and species group.

Tree grade is indicative of timber quality and is based on the sawlog portion of sawtimber trees. The sawlog portion sawtimber tree is the volume contained from one foot above ground to a nine-inch top or to where the central stem breaks into limbs.

The three most important characteristics that define tree grades 1, 2, 3 and 4 are the existence of a 16-foot or longer butt log, DBH, and the clarity on the third best log face. Tree grade 1 for most hardwood species must be at least 16 inches DBH and have an 83 percent yield on the third best face. Tree grade 2 must be a least 13 inches DBH and have a 67 percent yield in the third best face. Trade grade 3 has a minimum DBH of 11 inches and a 50 percent yield on the third best face. A grade 4 tree contains a gradable 16-foot butt log that grades below 3. A tree grade 5 does not contain a 16-foot butt log but has at least two noncontiguous eight-foot logs or one 12-foot log. More information on tree grading can be found in USDA FS 2013b and USDA FS 2013c. ■